Exhibit C
Preparation and Delivery of Electronic Engineering Data

I.   Surveying, Roadway Design & Plans Preparation Section

Upon WSDOT approval and acceptance of the final signed and stamped plans, the consultant shall provide to WSDOT the final electronic data, files, and resources for all survey, roadway design, and plans associated with the project. This information shall be delivered on a compact disc (CD) that includes an index file listing all the files with a brief description of the contents and purpose of each file. Electronic data and files shall be prepared, organized, and delivered as described in Sections A, B, and C below and as described in the Electronic Engineering Data Standards Manual[1] posted on the WSDOT CAE Consultant Resources web site. http://www.wsdot.wa.gov/eesc/CAE/resources/

A. Surveying: Survey data shall be collected using WSDOT methodologies as defined in the Highway Survey Manual (M22-97 Jan 2005) and all applicable professional surveying practices.

All primary survey control shall be established using Washington State Plane (NAD 83/91) and North American Vertical Datum of 1988 (NAVD 88) in English units. Primary control shall be transformed to project datum by applying the appropriate combined correction factor (scale factor, elevation factor.) All secondary control and topography work shall be done on the Project Datum.

The consultant shall prepare and deliver the electronic survey information in InRoads format in accordance with Section 5.1 of the Electronic Engineering Data Standards Manual[1].

B. Roadway Design: The WSDOT supported version of InRoads, current at the date of execution of the consultant agreement, shall be used for all computer aided roadway design calculations. If WSDOT upgrades to a newer version after the date of execution, the consultant, at their discretion, may use the more current WSDOT supported version. WSDOT custom resource files shall be used where applicable. All InRoads files shall be prepared using Project Datum as defined in Section "A" above.

The consultant shall prepare and deliver the electronic roadway design information in accordance with Section 6.2 of the Electronic Engineering Data Standards Manual[1].

C. Plans Preparation: Plans developed with Computer Aided Drafting "CAD" software shall adhere to the expanded level standards[2] defined in the Plans Preparation Manual (M22-31.) CAD files shall use a Project Datum as defined in Section "A" above.

The consultant shall prepare and deliver the CAD files in accordance with Section 7 of the Electronic Engineering Data Standards Manual[1]. CAD basemap and sheet files shall be delivered as 2D files in a format that can be used directly by MicroStation without translation.

D. Right to Review Product by the WSDOT: The State reserves the right to schedule visits

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at the consultant's location to review electronic files for compliance with WSDOT methodologies and standards. The consultant may request visits by WSDOT to review electronic files.

E. State Furnished Services and Information: The State will provide access to computer aided engineering support personnel for information about setting up and using WSDOT custom resources and procedures for InRoads and MicroStation.

The State will provide training on WSDOT specific procedures and custom resources for InRoads and MicroStation to consultant personnel who are already experienced with using InRoads and MicroStation. The dates and locations for all training will be scheduled by the State.

General training on how to use InRoads & MicroStation software will be the responsibility of the consultant.

WSDOT custom resources and guidance for using InRoads and MicroStation to deliver projects that meet the requirements outlined above are available at the following web site. Guidance and resources for WSDOT survey procedures are also available along with links to various manuals and other WSDOT sites of interest.

http://www.wsdot.wa.gov/eesc/CAE/resources/

Questions about this material or requests for other information should be directed to the WSDOT CAE Support Team. E-mail addresses and telephone numbers are posted on the website.

Other WSDOT web sites of interest:

http://www.wsdot.wa.gov - WSDOT Home Page
http://www.wsdot.wa.gov/biz/construction/MoreBooks.cfm - Standard Specifications
http://www.wsdot.wa.gov/eesc/design/projectdev/ - Wage Rates, GSPs, Std Items
http://www.wsdot.wa.gov/eesc/design/designstandards/ - Standard Plans
http://www.wsdot.wa.gov/fasc/EngineeringPublications/library.htm - Engineering Publications

[1] *The Electronic Engineering Data Standards Manual is currently in draft and under review. The final version will be posted on the WSDOT CAE Consultant Resources web site 2nd qtr of 2006.*

[2] *WSDOT expanded level standards for MicroStation will be published only in digital format and will be available on the WSDOT CAE Consultant Resources web site 2nd qtr of 2006.*

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II. Photogrammetric Mapping Services

A. Photogrammetry Deliverables: The consultant shall provide photogrammetric mapping services and any related services deemed necessary to include, project design, aerotriangulation, and compilation using current generation analytical and / or softcopy systems to produce and deliver 3D Computer Aided Drafting and Design (CADD) files; Digital Ortho Photos; and hardcopy plots. In all cases, data will be compiled to WSDOT specifications for accuracy, completeness, and file management. Delivery will be in the format consistent with that currently in use by WSDOT. A current listing and description of WSDOT procedures, methodology, software, equipment, and systems will be made available by contacting WSDOT Photogrammetry Section at 360-709-5540.

All map files shall be delivered to WSDOT in unedited, unprocessed form, directly from the stereoplotter system where the data was compiled from the stereomodel. WSDOT regards these files not as a finished cartographic product, but rather as raw data to be used in the preparation of alignments, design templates, and contract plans. Therefore, it is desirable to have the data exactly as interpreted and measured by the photogrammetrist without subsequent adjustment for aesthetic purposes. No attempt should be made to compile data where the ground is not clearly visible.

The consultant shall also provide to WSDOT the negatives for all original aerial photography used to produce the photogrammetry data.

B. Right to Review Photogrammetric Product by the WSDOT: The state reserves the right to schedule visits at the consultant's location to review procedures, systems, methodology, software, and qualifications for assurance of meeting WSDOT standards. The review(s) will include monitoring electronic file format and organization. The state reserves the right to review deliverables for compliance, completeness, and level of quality.

III. Bridge Design Section

A. Computer Aided Drafting Files: Computer Aided Drafting (CAD), files shall be prepared using WSDOT Bridge Office methodologies and standards as defined in Bridge Design Manual (M23-50.)

B. Right to Review Product by the WSDOT: The State reserves the right to schedule visits at the consultant's location to review electronic files for compliance with WSDOT methodologies and standards. The consultant may request visits by WSDOT to review electronic files.

C. Electronic Deliverables to WSDOT: Upon WSDOT approval and acceptance of the final signed and stamped plans; the consultant shall provide to WSDOT the final electronic versions of all CAD files and associated resource files on compact disc (CD.) The CD shall include and index file that lists all the files on the CD and provides a brief description of the content and purpose of each file.

CAD files shall be in a format that can be used directly by MicroStation without translation. All files associated with a CAD drawing shall be included using Bind for Xrefs or Pack N Go for fonts, shapes, etc.

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D. State Furnished Services and Information: The State will provide access to computer aided engineering support personnel for information and answers to questions on WSDOT standard procedures for plan preparation.

Additional information is available at the following WSDOT web site:

http://www.wsdot.wa.gov/eesc/bridge/drawings

IV. Methods to Electronically Exchange Data

A. WSDOT Level Playing Field Software Suite: The Department of Transportation has adopted a standard suite of software products and minimum level for computer hardware. This suite of products and hardware is referred to as the level playing field (LPF.) Word processing, spreadsheet, database, and other documents shall be delivered to WSDOT in a format that can be viewed directly by WSDOT's current versions of LPF software without conversion. Contact the WSDOT MIS Help Desk at 360-705-7050 for information on the current versions of LPF software.

B. Electronic Messaging: WSDOT currently uses Microsoft Outlook as an electronic mail standard.

- Where appropriate consultants can use "Internet" or "smtp" mail to send routine written correspondence.
- Sending and receiving attached documents to e-mail message should be done in "rich-text" format that conserves formatting of the original document.
- WSDOT currently has imposed a 3 Mb file size limit on e-mail attachments.

C. File Transfers using FTP: WSDOT has an FTP site (ftp://ftp.wsdot.wa.gov) for transferring files that exceed the 3 Mb limit for email attachments. Public files on the FTP server are not private and have a limited retention time. It can be customized for the specific parties involved or for purposes of the project to have longer file retention times and more security considerations. Contact the WSDOT MIS Help Desk at 360-705-7050 for information on how to access and use the FTP site.

D. Exchange of Removable Media: WSDOT physical exchange requirements vary from office to office. This contract should describe the specific types or the range of removable media to be exchanged physically with business partners so that both parties can read and write to that media.

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